CLAIMS

1. An apparatus comprising:

(1) a container; and

(2) an inhibitor of DPIV contained therein or attached thereto, wherein the container is sterile.

2. The apparatus of claim 1, wherein the container is a cell culture vessel.

3. The apparatus of claim 1, wherein the container is a cell culture vessel and the DPIV inhibitor is attached to the surface of the cell culture vessel.

4. The apparatus of claim 1, wherein the DPIV inhibitor is attached to a particle that is contained in the container.

5. A composition comprising:

(1) a magnetic particle; and

(2) an inhibitor of DPIV attached thereto.

6. The composition of claim 5, wherein the composition is sterile.

7. A kit for stimulating hematopoietic cells in vitro, comprising:

(1) an apparatus comprising:

(a) a container; and

(b) an immobilized inhibitor of DPIV contained therein or attached thereto; and

(2) instructions for using the apparatus to increase the number of hematopoietic cells in vitro.

8. The kit of claim 7, further including one or more growth nutrients for culturing the hematopoietic cells, wherein said growth are provided in the container of the apparatus or in a separate container, the contents of which can be added to the container of the apparatus at the

time of culturing the cells.

9. A method for expanding antigen-specific T cells in vitro, comprising:

(1) culturing bone marrow cells in the presence of a sufficient amount of a DPIV inhibitor to expand the number of early T lineage cells in the culture; and

(2) culturing the early T lineage cells in the presence of a sufficient amount of a heteroconjugate containing an inhibitor of a DPIV inhibitor attached to an antigenic peptide to expand the number of antigen-specific T cells in the culture.

10. A method for expanding antigen-specific T cells in vitro, comprising:

(1) culturing umbilical cord blood cells in the presence of a sufficient amount of a DPIV inhibitor to expand the number of early T lineage cells in the culture; and

(2) culturing the early T lineage cells in the presence of a sufficient amount of a heteroconjugate containing an inhibitor of a DPIV inhibitor attached to an antigenic peptide to expand the number of antigen-specific T cells in the culture.

11. A method for expanding antigen-specific T cells in vitro, comprising:

(1) culturing peripheral blood cells in the presence of a sufficient amount of a DPIV inhibitor to expand the number of T cells in the culture; and

(2) culturing the T cells with a sufficient amount of a heteroconjugate containing an inhibitor of a DPIV inhibitor attached to an antigenic peptide to expand the number of antigen-specific T cells in the culture.

12. A method for expanding antigen-specific T cells in vitro, comprising:

(1) culturing peripheral blood cells in the presence of a sufficient amount of a heteroconjugate containing an inhibitor of a DPIV inhibitor attached to an antigenic peptide to expand the number of antigen-specific T cells in the culture.

13. The method of claim 9, wherein the DPIV inhibitor is selected from the group consisting of a DPIV monomer, a DPIV homoconjugate, and a combination of the foregoing.

14. The method of claim 9, wherein the heteroconjugate contains a tumor-specific antigen.

15. The method of claim 9, wherein the heteroconjugate contains a pathogen-specific antigen.

16. The method of claim 9, wherein at least one culturing step is performed in the presence of added cytokines or stromal cells.

17. The method of claim 9, wherein at least one culturing step is performed in the absence of added cytokines or stromal cells.

18. The method of claim 9, wherein step (2) is performed in the presence of the antigenic peptide.

19. The method of claim 12, wherein step (1) is performed in the presence of the antigenic peptide.

20. The method of claim 9, wherein step (1) and step (2) are performed sequentially.

21. The method of claim 9, wherein the bone marrow cells are selected from the group consisting of isolated CD34+ cells and isolated stem cells.

22. The kit of claim 7, wherein the container is sterile.

23. The kit of claim 7, wherein the container is a cell culture vessel and the DPIV inhibitor is attached to the surface of the cell culture vessel.

24. The kit of claim 7, wherein the DPIV inhibitor is attached to a particle that is contained in the container.

25. The kit of claim 24, wherein the particle is a magnetic particle.